

issued July 15, 1915. The specimens from Texas referred to under the name *distinguenda* and recorded as parasites of *Bruchus prosopidis* and *Bruchus* sp. are not considered as part of the type material, but the writer is confident that they are the same species.

NOTES ON PERISIEROLA EMIGRATA ROHWER, A PARASITE OF THE PINK BOLL WORM

(Hymenoptera, Bethyliidæ)

By AUGUST BUSCK

This parasite was first observed in the Hawaiian Islands in 1912 and has undoubtedly been introduced only shortly previous to this time, possibly with the equally accidentally introduced host. It is, however, more probably an American species, introduced in 1910 from Texas in an attempt to establish effective parasites of the seed infesting coleopterous larvæ, which are injurious to the pods of *algaroba* (*Prosopis juliflora*); these trees are grown in the Islands and the pods are collected and used as fodder for cattle. In 1915 it was found rather commonly in all the cotton fields on the Island of Oahu and in the Kona cotton district on Hawaii and it is at present the only parasite of the pink boll worm of any importance. It is, however, by no means an effective check and destroys only a small percentage of the cotton pest. The larva is an external parasite on the full-grown larva of *gossypiella*.

The female works its way through the exit hole, cut by the boll worm before pupation, or through the lint of the opened boll into the cell, in which the boll worm is preparing to pupate, biting a hole in the cocoon, if necessary, with its strong mandibles.

The parasite jumps on the back of the larva, which wriggles violently in an effort to shake its enemy off. It accomplishes this at times or manages to reach and kill the parasite with its jaws, but normally the parasite succeeds in curving its abdomen around to the underside of the caterpillar and paralyzes it by inserting the sting into the nervous system, usually just

behind the thoracic legs. It then assures itself that the paralyzation is completed by biting and pulling the skin of the caterpillar, and after much deliberation it deposits its eggs. These are very large in proportion to the parasite, about one-half millimeter long, oblong oval, glassy white, and are normally placed one on a segment in two longitudinal rows on the underside of the caterpillar.

This, however, is not always the case; sometimes the eggs are placed on the back or on the side of the caterpillar.

Four to six eggs are most commonly laid on one host larva, but in captivity three parasites laid 17 eggs each on three larvæ, two laid 13 eggs, one 11, another 10, and still another 9 on single larvæ. In each case all eggs hatched and developed to imagos. Six to 10 eggs on a larva were repeatedly observed in the field.

These eggs hatch within 24 hours and the light reddish parasitic larvæ insert their heads into the caterpillar and grow rapidly, forming together a rosette on the shriveling body of the host. They become full-grown in two to three days and then spin their cocoons near the host larva. The spinning of the cocoon occupies nearly two days and before it is completed the larva voids a large fluid excrement through an opening left in the as yet unfinished cocoon. These excrements harden into a characteristic bifurcated black substance, which often serves to glue the cocoon to the supporting surface.

When there have been many (8-17) parasites on a single larva their cocoons are flimsy, semitransparent, and white. When only four to six parasites have found nourishment in a single larva they average larger in size and their cocoons are much more substantial and brownish in color.

The pupa of the parasite is at first white with coral red eyes, but turns blackish within a few days. During the summer-time in Honolulu the parasite develops in from 10 to 15 days after the egg is laid, but normally stays for a day within the cocoon, probably in order to harden in safety. The imago lives about two weeks and lays from 20 to 50 eggs, according to the host supply.

A very large percentage of these parasites are females, about 30 to one male, and parthenogenesis was repeatedly observed, seeming in fact to be a normal condition.

Reared females, which had been kept isolated each in a separate vial from the spinning of the cocoon and hence certainly virgins, would pounce at once on a *gossypiella* larva, introduced into the vial, paralyze it, and lay eggs.

These eggs would always hatch, barring accidents, and would commonly produce all female offspring, which in turn would oviposit without copulation and again produce females. Four generations consisting exclusively of females were produced in one experiment from a single unfertilized female.

The life history of this parasite is easily observed in captivity by placing a host larva with the female parasite in a small vial. The parasites issued from caterpillars in stored cotton seeds would not fly away in search of growing cotton, but would search for new victims indoors in seeds. The species is, on the other hand, equally at home outdoors and readily finds its host in the bolls in the fields.

The species is recorded in Hawaiian literature as *Goniozus cellularis* Say.

A CHALCID PARASITE OF THE PINK BOLL WORM

(*Hymenoptera, Chalcididæ*)

By A. A. GIRAULT

Stomatoceras pertorvus, new species.

Female.—Similar to the Indian *sulcatiscutellum* Girault, but the scape, pedicel, funicle 1 (and sometimes 2), tegulæ, tarsi, club, knees and tibia (except middle ones sometimes above in the middle), dark reddish; the infuscation under the marginal vein is wider, and there is a faint loop from it to the costal margin beyond the venation; the post marginal vein is distinctly shorter, and shorter than the marginal; the scutellum has a depression between the end of the median sulcus and the apical plate. About the same otherwise. Types compared.